

**To:** Ginsberg, Marilyn[Ginsberg.Marilyn@epa.gov]  
**Cc:** Smith, Robert-Eu[Smith.Robert-Eu@epa.gov]; McWhirter, Lisa[McWhirter.Lisa@epa.gov]; Albright, David[Albright.David@epa.gov]; Engelman, Alexa[ENGELMAN.ALEXA@EPA.GOV]; Moffatt, Brett[Moffatt.Brett@epa.gov]  
**From:** Dermer, Michele  
**Sent:** Tue 9/23/2014 9:38:11 PM  
**Subject:** RE: AE in CA

Hi Marilyn,

See below in blue CAPS

**From:** Ginsberg, Marilyn  
**Sent:** Tuesday, September 23, 2014 1:24 PM  
**To:** Dermer, Michele  
**Cc:** Smith, Robert-Eu; McWhirter, Lisa  
**Subject:** AE in CA

Hi Michele,

Thanks for your help a couple of weeks ago. I've been drafting up my understanding of our conversations about AEs in California. Can you please tell me if I've gotten it right? As I went through my notes, several generic questions arose in my mind, especially where there was overlap with info that I obtained from Mr. Salera, and I ask for your help with these questions, too, please. There are a lot of questions embedded, below, and any help that you can give me would be greatly appreciated!!

Mr. Salera had guided me to the three DOGGR volumes of O&G well reports that you and I discussed:

([http://www.conservation.ca.gov/dog/pubs\\_stats/Pages/technical\\_reports.aspx](http://www.conservation.ca.gov/dog/pubs_stats/Pages/technical_reports.aspx).)

The volumes are dated 1982, 1992 and 1998. The index maps from these reports give a sense of the large number of O&G pools. Can I correctly assume that the 1970 volume captured all the pre-1970 AEs, the 1992 volume captured all the 1971-1992 AEs, and the 1998 volume captured the 1992-98 AEs. NO, THE ONLY AES ARE FOR THE POOLS IN THE 1970s VERSION. THAT IS IN ESSENCE THE PROBLEM, THE POOLS EXPANDED BUT EXEMPTIONS WERE ONLY GRANTED FOR THE EARLIER VOLUMES. My understanding from my conversation with Mr. Salera, is that there are AEs for all the EOR wells, in all three volumes, for all the pools, and those AE boundaries were collocated with the pool boundaries in three dimensions. Is he/am I correct? THE GEOLOGY REPORT VOLUMES APPEAR TO BE IN TWO

DIMENSIONS. Mr. Salera said that he and his group are going through the old reports (I gather that he means the reports in the three volumes), because the AEs for those wells (I am assuming that he means the EOR wells) would have to be expanded, as time and technology have resulted in an expansion of the aquifer areas that have been impacted by oil/gas production. I THINK THAT IS WHAT THEY ARE DOING

A pool or cluster of pools is/are often located in portions of strata that are isolated from the rest of the formation by faults on the side, and by a confining unit below. (The projections of pools up to the land surface are shown on the index maps as "shaded areas" [i.e., "footprints"]). Whether or not the formation on the other side of a bounding fault is a USDW, would have to be determined on a case-by-case basis, although broader statements about "likelihood of a USDW" might be possible in some areas.

My understanding from speaking with you is that, for many of the pools (that eventually became exempted-aquifer areas) delineated in the early 1970's, the impacted area at the time of primacy (early 1983) would have been larger than the area delineated in the 1970s. More accurate delineation maps should have been a part of the AE approval process during the UIC Primacy process. I GUESS THAT MAKES SENSE, THEY ONLY HAD THE 1970+ VOLUMES AT THE TIME PRIMACY WAS APPLIED FOR AND GRANTED, SO ONLY WHAT IS IN THOSE VOLUMES IS EXEMPT. Furthermore, the impacted areas for any of the wells, not only in the 1983 volume, but also those in the 1992 and 1998 volumes, likely would have continued to increase in size since primacy approval. My understanding is that this need for AE expansions is, in large part, what Mr. Salera, et al, are working on. YES, THAT IS CORRECT. TAKEN A STEP FURTHER, THE LAST TIME THE VOLUMES WERE UPDATED IN 1998 I THINK, AND SO THAT IS OLD INFORMATION ALSO. SO THEY NEED CURRENT PRODUCING INFORMATION ADDED AS WELL.

In addition to the AEs associated with the EOR wells, there are AEs for disposal of the fluids associated with O&G production. The "shaded areas" for these AEs tend to be rectangular in shape. Do you know if the AEs have been defined in three dimensions? I HAVE ONLY THE VOLUMES YOU HAVE. DOGGR HAS BEEN WORKING ON DIGITIZING IN THREE DIMENSIONS. Would these be included in volumes 1-3?

Question, please: separate from the three DOGGR volumes, above, were there additional AEs, associated with O&G EOR-well injection or related disposal, that are not in volumes 1, 2 or 3? CORRECT, THESE ARE THE WASTE DISPOSAL ZONES. If so, are the records readily available? YES, ALL THE NON HYDROCARBON BEARING EXEMPT ZONES OF WHICH THERE ARE 21 IN THE MOA. PLUS A FEW MORE WERE GRANTED POST PRIMACY.

Is my understanding from our conversation correct, that there are numerous AEs that were approved (would this be at the time of primacy?), without a canvass for drinking water wells in and around the proposed AE? I DO NOT SEE IN THE INFORMATION WE HAVE ANY DRINKING WATER WELLS WERE CONSIDERED AS PART OF THE PRIMACY EVALUATION. Also, my sense from our conversation is that the paperwork

describing a search for drinking water wells might never have existed, that is, when this program was in its infancy, there may not have been a search for drinking water wells. Do you agree or do you think that a search for paperwork would be productive?  
CORRECT

Lastly, I didn't think of asking this when we spoke, but could you tell me, first, if there were improperly approved exemptions, and secondly, if there were, do you know what the Region now wants to do about them? THIS IS A LARGER QUESTION I WILL DEFER TO DAVID. IT WOULD SEEM YOU NEED TO BE COORDINATING WITH BOB, HE HAS A GOOD IDEA ABOUT THE QUANDRY WE ARE IN.

BTW, we, at HQ, sure would like copies of documentation that you can find!

Thanks a lot,

Marilyn